CALIFORNIA BIODIVERSITY NEWS

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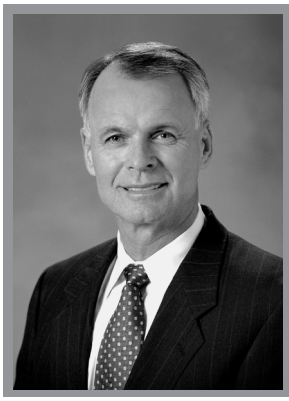

by
Mike Chrisman
Co–Chair, California Biodiversity Council

FROM THE CHAIR

Our goal of building a strong, vibrant California goes hand in hand with the responsibility of being good stewards of the environment. Combating global climate change must be at the heart of this effort.

Throughout California, leaders at all levels are developing creative, effective solutions to address climate challenges.

In 2006, Gov. Schwarzenegger signed AB 32, the Global Warming Solutions Act, calling for a significant reduction of greenhouse gas emissions. The law ultimately commits Californians to reduce emissions by 25 percent by 2020, and we are well on our way.

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California's Renewable Energy Programs

California with its abundant natural resources has had a long history of support for renewable energy. In 2007, 11.8 percent of all electricity came from renewable resources such as wind, solar, geothermal, biomass and small hydroelectric facilities. Large hydro plants generated another 11.7 percent of our electricity.

Around the turn of the 20th century, tens-of-thousands of homes in Southern California took advantage of the "California sunshine" to heat water for their homes. The oil crises of the 1970's gave rise to a concerns over dependency on fossil fuels. At that time, federal and state tax credits helped establish a new solar and wind industry. Wind turbine farms cropped up on the slopes of hills in three primary locations.

Following deregulation of the electric utilities in 1998, the

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The Natural Resource Projects Inventory (NRPI)

by Kevin Ward, UC Davis Information Center for the Environment

Do you know who else is protecting your favorite river? Watershed? Species? Who else in California has experience with your conservation challenges? Would you like to know where your conservation dollars are being spent? To answer these questions for both natural resources agencies themselves and the public they serve, the California Biodiversity Council in 1997 launched a project to collect information on thousands of publicly-supported projects that are protecting and restoring natural resources in California. The Natural Resource Projects Inventory (NRPI) is a statewide database and website built and maintained for the Council by UC Davis that has assembled and catalogued publicly-supported projects to manage and protect California's rivers, watersheds, and natural communities. First funded in July 1997 by the Bureau of Land Management under then CBC co-chair Ed Hastey, members of the Council joined forces and provided

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From the Chair

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But reaching these goals can only be possible through the advancement of reliable, renewable energies. This is why in November 2008 the Governor signed an executive order to streamline California's renewable energy project approval process and directed state agencies to work collaboratively with federal partners. He also expanded the state's Renewable Portfolio Standard goal to 33 percent renewable power by 2020, a standard that is now the most aggressive target in the United States.

We will get there because Californians up and down the state are helping us. Through the California Solar Initiative, families and businesses are reducing the output of greenhouse gases. Clean energy sources like solar, wind, geothermal and tidal are powering our world without releasing emissions or burning fossil fuels. And utilizing renewable sources of energy can save consumers money and create green jobs.

Each day, we move closer to meeting our goals in the fight against global climate change. But we can do more.

This month, please join us in El Centro for a particularly important California Biodiversity Council meeting that focuses on our renewable energy future. We will examine our current energy supply landscape and explore efforts to achieve renewable energy development and greenhouse gas reductions.

As we move the state forward on a path toward a clean energy economy, I'm confident that together we can protect California – and its tremendous biodiversity – for generations to come.

Let's build on our commitment.

Secretary Kempthorne Authorizes BLM to Establish Special Offices to Expedite Development of Renewable Energy

In a move aimed at accelerating the development of renewable energy on public lands, on January 16, 2009 Secretary of the Interior Dirk Kempthorne issued a Secretarial Order that authorizes the Bureau of Land Management to establish coordination offices that will expedite the permitting of wind, solar, biomass, and geothermal projects, along with needed electrical transmission facilities, on BLM-managed lands. The Secretary's action advances the Interior Department's efforts to achieve the goal that Congress set in Section 211 of the Energy Policy Act of 2005, which calls for the development of 10,000 megawatts of non-hydropower renewable energy projects on the public lands by 2015.

"At a time when America is crying out for renewable forms of energy, it is critical that the Federal government expedite the development of wind, solar, biomass, and geothermal resources on public lands," said Secretary Kempthorne. "This is another step forward in this Administration's effort to create a diverse portfolio of domestic energy supplies for the future."

The to-be-established energy offices, known as Renewable Energy Coordination Offices, will be designated by the BLM and will initially be located in those states where the greatest interest has been shown in renewable energy development: Arizona, California, Nevada, and Wyoming. "These new offices will not only support the timely processing of renewable energy project applications, but also will ensure that renewable energy projects and electrical transmission facilities comply with all environmental laws and regulations," BLM Director Jim Caswell said. Among those laws are the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, and the National Historic Preservation Act of 1966.

The Renewable Energy Coordination Offices will be staffed by BLM employees from a variety of natural resource disciplines, and will also receive staff support from the U.S. Fish and Wildlife Service and other bureaus within the Department of the Interior.

The Order issued by Secretary Kempthorne authorizes the BLM Director to allocate resources that support the processing and permitting of renewable energy projects on public lands; to develop best environmental management practices for these projects; to recover costs in the processing of renewable energy applications; and to improve coordination with other Federal agencies, including the Department of Energy and the Environmental Protection Agency, as well as state agencies, in order to facilitate the processing and permitting of renewable energy projects on public lands.

The BLM manages more land – 256 million acres – than any other Federal agency. This land, known as the National System of Public Lands, is primarily located in 12 Western states, including Alaska. The Bureau, with a budget of about $1 billion, also administers 700 million acres of sub-surface mineral estate throughout the nation. The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

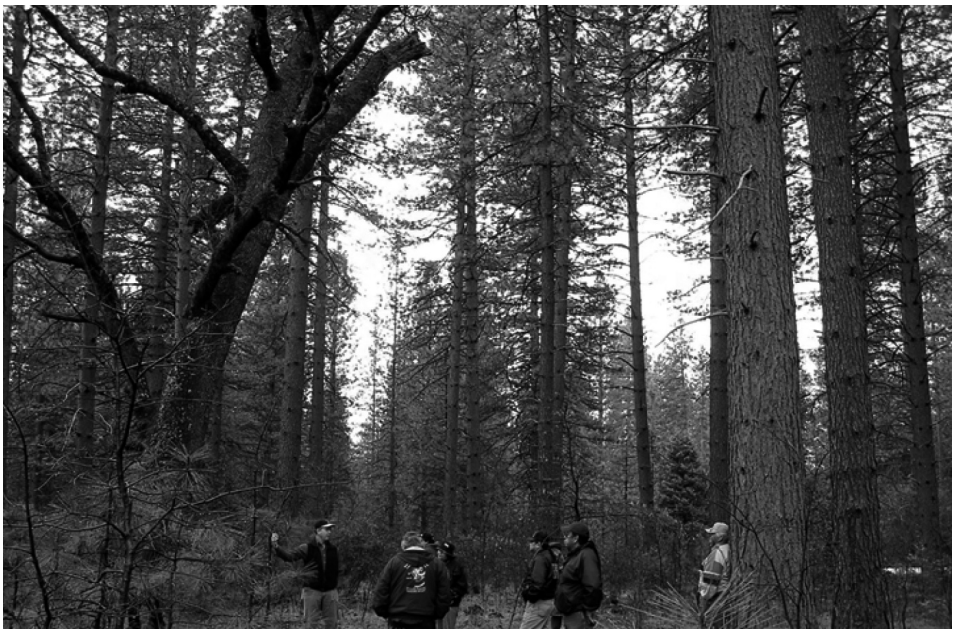
Forest Biomass in California

by Gary Nakamura and John Shelly, UC Cooperative Extension Center for Forestry; Mark Nechodom, USDA Forest Service; Doug Wickizer, CAL FIRE; and Bruce Goines, USDA Forest Service

Small trees and other biomass in the understory of many forests in California have become widely recognized as constituting a hazardous level of fuels capable of supporting catastrophic wildfires and resulting in the large areas of intense fire and severe fire damage that we have seen recently. Managing biomass fuels loads is a critical factor in attempts to reduce the severity of wildfire.

The forest products industry has known of the energy value of wood for more than a century and used wood residues to produce heat, steam and electricity in their plants, but production of electricity from woody biomass was little known until the Federal Public Utility Regulatory Policy Act (PURPA) was passed in 1978. This act created financial incentives for the production of renewable energy, as well as an interest in building a harvesting and transportation infrastructure to support stand-alone biomass power plants.

Until forest biomass harvesting was used to supply the power plants, small trees, shrubs, and other biomass were cut to thin the forest to reduce competition for the remaining, reserved crop trees. The treatment was called precommercial thinning, which creates more growing space and resources for the reserved, crop trees. However, because of limited commercial markets for the small trees, they were often cut and left on site, creating more surface fuels that would support catastrophic wildfires. Thus, a major issue for biomass harvesting or thinning is how large and how many trees to remove, in what spatial pattern, and at what cost?



The US Forest Service estimates 5.5 million acres of California's public forestland are in need of fuels reduction, which could produce biomass products. Mechanical treatment can be biomass harvesting which cuts and removes the fuel from the site, or on-site chipping (mastication) where the trees are cut, chipped, and spread back on the forest floor in a less flammable condition.

Considering only areas that can be operationally and practically treated (i.e. excluding wilderness areas, environmentally sensitive areas, and areas distant from transportation infrastructure), the California Biomass Collaborative estimates about 10 million bone dry tons (BDT) as thinnings, slash, and shrubland treatment biomass could be avail-

able each year for harvest in California. Current biomass harvesting levels are well below this value.

Forest biomass harvesting

Biomass harvesting equipment can operate on 35% + slopes, but efficiency and economics suffer at steeper slopes. Thus, extensive areas of eastside pine and mixed conifer on the volcanic terrains of northeastern California have been biomass harvested. Much of this flat forestland is privately owned and highly productive, further justifying the practice and cost of thinning it for tree growth as well as fuel and fire hazard reduction. The steeper grounds of the Klamath Mountains, coast range, and the westside Sierra Nevada will be more difficult and expensive to biomass harvest.

Forest biomass utilization

Technologies exist to make a wide variety of products from woody biomass. These include (generally from lowest value/least capital investment to highest value/most capital investment):

- Soil additives and amendments (mulch, compost, etc.)
- Firewood and fuel wood
- Combustion fuel for biomass power plants
- Solid wood products (lumber and round wood)
- Non-structural composite products including wood/plastic lumber and wood/cement products
- Structural composite products such as particleboard and oriented-strand board
- Pulp chips for paper products
- Organic chemicals including alcohol (ethanol, methanol), cellulose-based compounds, turpentine, tannins, pharmaceuticals, fragrances, and the basic building blocks for many plastics

The physical properties of much of the available forest biomass are often inferior to other woody biomass raw materials that can be used to make these products, the costs of harvesting and transporting the forest biomass are high, and there are few manufacturing facilities in the state capable of using forest biomass to produce the value added products mentioned above. As a result the major markets currently available are for low value soil amendments and combustion fuel. California currently uses about 5 million bone-dry tons of biomass, including forest, agricultural, and urban fuels, to produce about 2% of its electricity. Additional capacity is needed to encourage the use of the additional amounts of biomass available on a sustainable basis.

Part of the solution to encouraging more use of forest biomass may come from newer designs in biomass combustion and gasification/combustion systems sized from 500 kilowatts to 2 Megawatts that can provide heat and electricity for manufacturing or a small community using from 5 to 40 tons of biomass per day (depending on system size and biomass moisture content). Systems smaller than 500 kilowatts also may be appropriate for use in public buildings in remote areas where fuel and electricity costs are high. If the logistics of siting these facilities and providing the infrastructure needed to guarantee continual fuel supplies can be implemented, then local markets may develop to help reduce the costs of removing hazardous forest fuels at the local level. However, on a broader scale it is clear that additional incentives are needed to encourage new markets and add capacity. The federal government, recognizing the need to find viable uses for forest biomass, is providing some

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ESTABLISHING THE INVASIVE SPECIES COUNCIL

California is being severely impacted by invasions of an increasing number of harmful, exotic, non-native plants, animals, organisms and diseases.

The establishment of these invasive species results in significant damage to California's agricultural lands, natural resources, waterways and our rural and urban environments, and causes economic hardship for all Californians.

There is significant interest in excluding, detecting, eradicating and controlling the spread of harmful invasive species into and within California and there is a need for a mechanism for coordination, cooperation and collaboration to achieve this objective.

The state intends to complete and implement a statewide action plan for meeting the challenges that invasive species present, and desires to engage public and private organizations to assist in the development and implementation of this plan.

The establishment and spread of invasive species can supplant native species, and can lead to unintended consequences on native species and terrestrial and aquatic habitats.

1. Today we announce the formation of the California Invasive Species Council (Council);
2. The Council shall be chaired by the Secretary of the California Department of Food and Agriculture and vice-chaired by the Secretary of the California Natural Resources Agency; and
3. The purpose of the Council is to provide policy level direction and planning for mitigating harmful invasive species infestations throughout the state and for preventing the introduction of others that may be potentially harmful. The Council shall foster coordinated, streamlined approaches that support initiatives for the prevention and control of invasive species, avoiding
program duplication by building upon the core competencies of member organizations.

The Council's actions will minimize the harmful effects of invasive non-native species on California's agriculture, lands, natural resources, waterways, rural and urban environments and ensure the economic and environmental well being of the State of California and the nation by:

1. Serving as a forum for identifying and understanding invasive species issues from all perspectives;
2. Developing policies that reflect the need to minimize the economic and environmental harm posed by invasive species;
3. Coordinating the state's resources to maximize opportunities to encourage exclusion, prevention and control of harmful non-native species;
4. Identifying federal programs and other

private funding sources that can leverage existing state resources;

5. Organizing and streamlining the interagency process for excluding, detecting, eradicating and controlling invasive species;

6. Considering ways to halt the spread of invasive species as well as finding possible ways to bring current problems under control;

7. Producing a state strategic plan for the exclusion, detection, eradication, mitigation and control of harmful invasive species;

8. Integrating invasive species exclusion, prevention and control activities with other cooperating states and state associations as well as with neighboring international governments; and

9. Forming an advisory committee.

The California Invasive Species Council will include a representative from the Secretaries of the following state entities:

1. California Dept. of Food and Agriculture
2. California Natural Resources Agency
3. California Environmental Protection Agency
4. California Business, Transportation and Housing Agency
5. California Emergency Management Agency
6. California Health and Human Services Agency

A California Invasive Species Advisory Committee (CISAC) shall be established to provide advice to the Council from local government, special districts, tribal governments and federal agencies, as well as water, conservation, and environmental organizations, academic institutions, science institutions, affected industry sectors and impacted landowners. Representatives from the following entities shall be invited to participate on the Invasive Species Advisory Committee:

1. University of California
2. California State University
3. Local government and local government organizations
4. Federal agencies
5. Tribal governments of California
6. Water, conservation, environmental and invasive species organizations
7. Public health organizations
8. Landowner organizations
9. Agriculture and nursery sector organizations
10. Scientific and academic institutions

The Council may appoint a statewide California Invasive Species Coordinator to lead the CISAC. The CISAC will report to and advise the Council. Additional members to the Advisory Committee may be added by consensus of the Council. The advisory committee will:

1. Develop a list of the highest priority invasive species that cause or may cause the greatest economic, public health or environmental hardship;

2. Identify participants and develop a process for an invasive species rapid response plan; and

3. Identify federal programs and private funding sources to leverage state resources.

For more information about the Invasive Species Council, please visit http://www.cdfa.

California's Renewable Energy Programs

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California Energy Commission was placed in charge of a new Renewable Energy Program to help increase total renewable electricity production statewide. This followed decades of bi-partisan legislative and gubernatorial support for renewable energy helping to make California a recognized leader in the field.

From 1998 to December 31, 2006, the Energy Commission's Emerging Renewables Program funded grid-connected, solar/photovoltaic electricity systems under 30 kilowatts on homes and businesses in the investor-owned utilities' service areas. The California Public Utilities Commission (CPUC) funded larger self-generation projects for businesses.

The Energy Commission's program provided market-based incentives for new and existing utility-scale facilities powered by renewable energy. It also offered consumer rebates for those installing new renewable energy systems. The program also helps educate the public regarding renewable energy. Find out more about the history of the program.

In January 2006, the CPUC created the California Solar Initiative (CPUC ruling - R.04-03-017), which moved the consumer renewable energy rebate program for existing homes from the Energy Commission to the utility companies under the direction of the CPUC. This incentive program, for renewable systems of less than one megawatt, began in January 2007 and provides a total of $3.3 billion over ten years.

Beginning in 2007, the California Energy Commission started managing $400 million targeted for energy efficiency and solar on new residential building construction. The funds from the Energy Commission will help renewable projects between 2007 and 2011. Called the New Solar Homes Partnership, it focuses on new residential construction.

Utility Companies and Renewable Energy

In 2002, California established its Renewable Portfolio Standard Program, with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20% by 2017. 2003 Integrated Energy Policy Report recommended accelerating that goal to 20% by 2010, and the 2004 Energy Report Update further recommended increasing the target to 33 percent by 2020. The state's Energy Action Plan supported this goal.

In 2006 under Senate Bill 107, California's Renewables Portfolio Standard (RPS) was created and codified the 20 percent goal. It is one of the most ambitious renewable energy standards in the country. The RPS program requires electric utilities and providers to increase procurement from eligible renewable energy resources by at least 1% of their retail sales annually, until they reach 20% by 2010.

On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08 requiring that California utilities reach the 33% renewables goal by 2020.

Timeline for Electricity from Renewable Resources:

- 2002: Senate Bill 1078 establishes the RPS program, requiring 20% renewable energy by 2017.
- 2003: Energy Action Plan I accelerated the 20% deadline to 2010.
- 2005: Energy Action Plan II recommends a further goal of 33% by 2020.
- 2006: Senate Bill 107 codified the accelerated 20% by 2010 deadline into law.
- 2008: Governor Schwarzenegger issues Executive Order requiring 33% renewables by 2020.

Biodiversity Council Meets to Discuss "Nature Deficit Disorder"

by Lauren McNees, California Biodiversity Council

The California Biodiversity Council (CBC) met in Oakland, CA on October 8-9, 2008 to learn more about the increasing disconnect between children and nature. Today's children are not fueled by the sheer joy and discovery of climbing trees, exploring trails and building dams in a stream. Rather, they are spending more and more time indoors and inactive. Yet this is the generation we will look to as our future stewards. The California Biodiversity Council's "Children in Nature" meeting focused on how land management agencies can and should address this issue. The CBC learned from successful programs how to forge ahead as part of this rapidly growing national movement.

The first day of this 2-day meeting gave participants the opportunity to see what this issue is about first-hand. Three separate field trips explored various neighborhoods of the bay area to see what challenges youth are facing. The Oakland/Richmond field trip visited the Nevin Community Center and Park and the Richmond Greenway, where outdoor opportunities are few and safety is the primary barrier, then went on to visit Civicorps Elementary School and the East Oakland Boxing Association to see two inspiring examples of successful outdoor programs for youth. The San Francisco field trip visited Hunter Bay-View Point Area where youth lead environmental restoration projects led by a partnership between California State Parks and Literacy for Environmental Justice, then learned about camping, restoration and leadership opportunities available to underserved youth through the Crissy Field Center at the Presidio. The East Palo Alto field trip visited East Palo Alto Charter School, the Center for Collective Roots' organic gardening program and the Riekes Center's Nature Mapping program at the Don Edwards San Francisco Bay National Wildlife Refuge. Following the day's field trips, the CBC enjoyed dinner at Oakland's Preservation Park while Charles Jordan of the Conservation Fund spoke about how land managers can make a difference.

The second day was devoted to a business meeting to determine possible solutions

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NRPI

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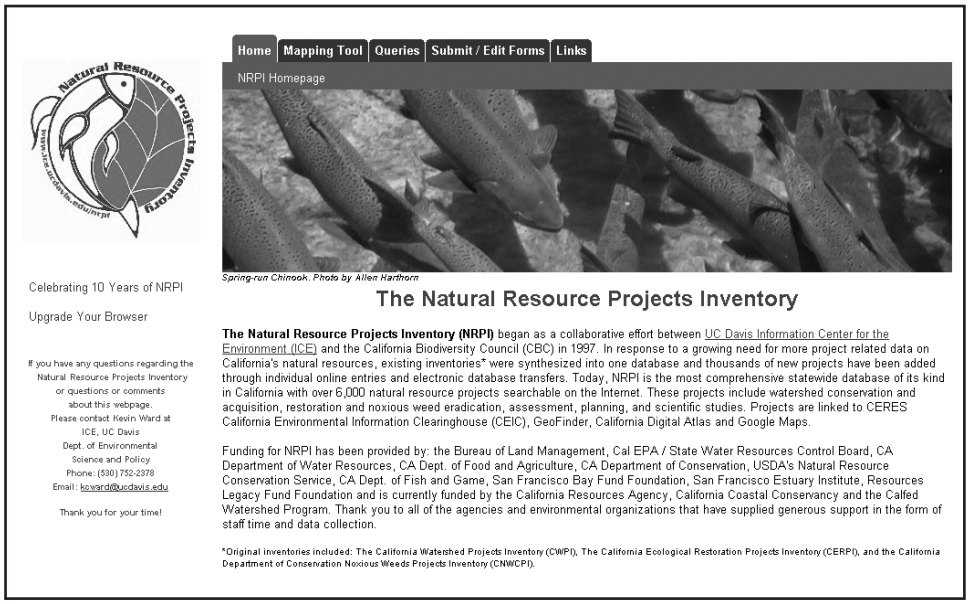
additional support to gather information on thousands of watershed conservation, restoration, mitigation, noxious weed eradication, assessment, planning, and scientific studies being developed and implemented throughout California. NRPI provides a central, publicly accessible clearinghouse for agencies, researchers, and the interested public to identify projects, organizations, experts, and natural resource issues being addressed in their watershed, jurisdiction, or topics of concern. By years end, NRPI is expected to have over 8,000 projects, most having multiple partners and funded by federal, state and private grants.

Over the years, there have been many enhancements made to NRPI with funding from over a dozen CBC member agencies as well as several foundations and nonprofits. Recent developments include going entirely paperless in 2005, with help from the State Water Resources Control Board (SWRCB). The SWRCB also added the California Nonpoint Source Management Measures and Categories for tracking purposes within California for the U.S. EPA, simplifying reporting for watershed groups and other grant recipients. With the most recent funding from the California Resources Agency, the Calfed Watershed Program and the California Coastal Conservancy, NRPI launched new and improved website with an online mapping tool and a report generator. The new Mapping Tool allows users to query NRPI and then view the returned data and generate maps of projects involving specified sponsors or participants by watershed, county, legislative district, and many other parameters. The returned results can also be formatted into downloadable PDF reports or Excel spreadsheets that can be used for internal tracking or satisfy the demands for increased accountability and information to legislators or other institutions.

NRPI is one of the few relatively comprehensive statewide services documenting statewide natural resource management activities anywhere in the U.S., and is by far the largest compilation of public conservation projects of any state Its content specification will probably be adapted as a standard for comparable clearinghouses in California, other western and Pacific states, and possibly nationally through the National Biological Information Infrastructure and related national standards groups. In part, this represents continuation of organizational, management, outreach, and quality assurance activities by agency representatives and public policy experts at UC Davis. However, there is also an increasing urgent need to migrate the software and web technolo-



gies used by NRPI, to take advantage of new open-source technologies and emerging open-access standards for public information, and to coordinate with complementary information services at the Resources Agency and elsewhere using Web Services (machine readable interfaces allowing data to be automatically shared among responsible organizations).

Despite its multiple-agency parentage and history of year-to-year support from Council members and ongoing support for the computers and networking itself from UC, USGS, NSF, and others, identifying sustained funding for following the progress of California environmental projects remains a challenge. This is not unusual – our environmental efforts have a long history of paying to get a project started, then running out of money to monitor the outcomes, even though it is well recognized that we can manage change effectively if we know what has already worked. The supporters of NRPI hope to find the means to carry its contributions forward into the next decade.

For more information, please visit www.ice.ucdavis.edu/nrpi

Nature Deficit Disorder

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with more information from experts. The California State Board of Education, the California Department of Public Health and the Stewardship Council provided "A Broader Look at the Issues and Opportunities for New Partnerships". This was followed by a very moving "Panel of Successful Projects That Have Overcome the Barriers" from Outdoor Outreach in San Diego and the Central Valley Consortium in Fresno, two programs that have literally saved the lives of dozens of at-risk youth through inspiring a love for the outdoors. The National Association of Park Directors shared information about a partnership between California State Parks and the National Park Service, and finally CBC members were given the opportunity to speak about their own programs. Many CBC member agencies have programs of their own which aim to connect children to nature, but do not know of other agencies' similar programs, and this exercise gave them the opportunity to learn more. Finally, the day's informative presentations were concluded with an inspiring action item, the signing of the California Children's Bill of Rights.

Forest Biomass

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support to this effort through various policies and programs.

Federal Forest Biomass Utilization Policies and Programs

The Biomass Research and Development Act of 2000 established policy and technical advisory boards to address key technical challenges to economically competitive "biobased industrial products and technology for converting biomass into desired Biobased industrial products." The Act authorized $49 million per year for FY2000-2005, and directed the Secretaries of Agriculture and Energy to develop coordinated research and development programs. The 2002 Farm Bill established the Renewable Energy Systems and Energy Efficiency Improvements loan and grant program to encourage agricultural producers and small rural businesses to create renewable and energy efficient systems.

Title II of the Healthy Forests Restoration Act of 2003 amends the Biomass Research and Development Act to include $25 million annually for R&D supporting, among other biomass sources, utilization of small diameter trees. The Act also establishes a grant program of $5 million per year FY2004 through 2008 to support the purchase of biomass by existing facilities that use the biomass for heating, power generation, transportation fuels and other biobased products. These grants are limited to $100,000 per grantee in a given year, and help in large measure to overcome transportation costs.

As part of the Administration's Healthy Forest Restoration Initiative the USDA Forest Service launched a $5 million/year program (2005-2009) for grants that increase the use of woody biomass from National Forest lands and adjoining forest lands, to improve utilization of woody biomass and create markets for small-diameter material and low-value trees removed from hazardous fuel reduction activities. In 2005, 20 grants ranging from $50,000 to $250,000 were awarded for projects that would turn forest residues into marketable products or energy.

In 2003, the Secretaries of Interior, Agriculture and Energy signed a Memorandum of Understanding (MOU) to promote the use of woody biomass by-products resulting from forest restoration and fuel reduction projects. Implementation of the MOU has led to the establishment of the Woody Biomass Utilization Team, to provide a clearinghouse for policy and decision makers in woody biomass utilization, as well as to support integration of biomass utilization into appropriate executive agency planning processes. Congress has directed the Forest Service to coordinate with the Bureau of Land Management to consider biomass utilization opportunities as an alternative to prescribed fire as a fuels reduction treatment. Forest Service units are also being directed to develop five year vegetation and fuels management plans that will lay out acreages planned for thinning and fuels reduction treatments. Ultimately the Federal goal is to support new markets for low value and small diameter trees in the interest of helping to reduce the costs of hazardous fuels reduction treatments.

Reading

The California Deserts: An Ecological Rediscovery by Bruce M. Pavlik explores the remarkable diversity of life in this harsh yet fragile quarter of the Golden State. In a rich narrative, it illuminates how that diversity, created by drought and heat, has evolved with climate change since the Ice Ages. Along the way, we find there is much to learn from each desert species— whether it is a cactus, pupfish, tortoise, or bighorn sheep—about adaptation to a warming, arid world. Available for $60.00 from UC Press at http://www.ucpress.edu.

Conservation for a New Generation: Redefining Natural Resources Management by Richard Knight and Courtney White. In hundreds of watersheds and communities across the United States, conservation is being reinvented and invigorated by collaborative efforts between federal, state, and local governments working with nongovernmental organizations and private landowners, and fueled by economic incentives, to promote both healthy natural communities and healthy human communities. This book captures those efforts with chapters that explain the new landscape of conservation along with case studies that illustrate these new approaches. Available for $30.00 from Island Press at http://www.islandpress.org.

Dead Pool: Lake Powell, Global Warming, and the Future of Water in the West by James Lawrence Powell. In a provocative exploration of the past, present, and future of water in the West, James Lawrence Powell begins at Lake Powell, the vast reservoir that has become an emblem of this story. Writing for a wide audience, Powell shows us exactly why an urgent threat during the first half of the twenty-first century will come not from the rising of the seas but from the falling of the reservoirs. Available for $27.50 from UC Press at http://www.ucpress.edu.

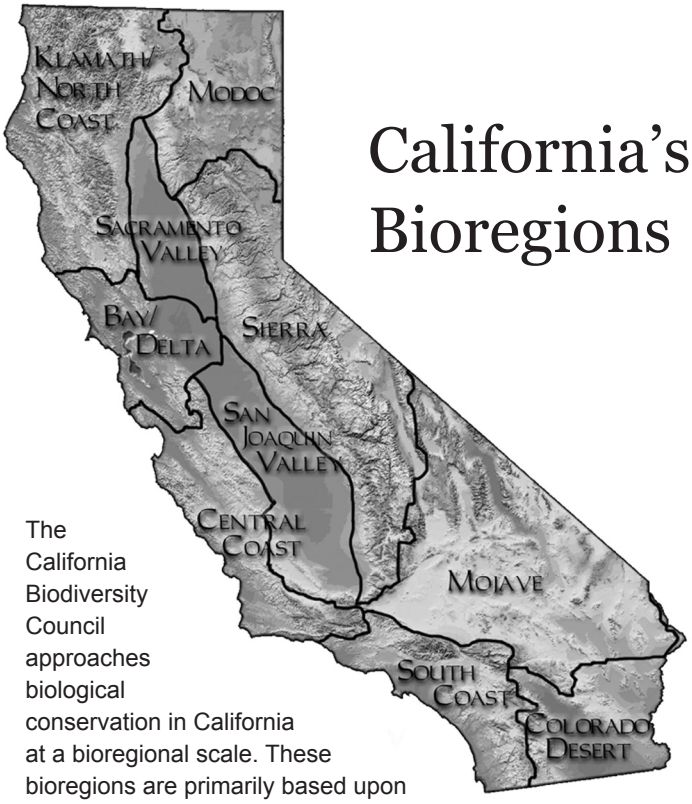
Introduction to Energy in California: California Natural History Guide by Peter Asmus. This key reference is a primer on energy in a state that continues to lead the world in finding sustainable solutions to one of the most pressing issues of the twenty-first century. Making the complex world of energy science and policy accessible to a wide audience, Peter Asmus examines the rich human history of California's earliest oil and hydroelectricity developments, explains the natural history underpinning the state's cornucopia of energy sources, covers such controversial sources as nuclear reactors and liquefied natural gas, and more. Available for $50.00 from UC Press at http://www.ucpress.edu.

Digital Resources

UC Berkeley Webcasts and Podcasts from courses and events are available online for free. From Anthropology to Statistics, you can learn something new from your car or computer. http://webcast.berkeley.edu/

Cal-Atlas Geospatial Clearinghouse, launched by the California Natural Resources Agency and the Office of the State Chief Information Officer in February, facilitates the coordinated and sustainable development, maintenance, licensing and sharing of geospatial data and web map services by California government agencies, partners and stakeholders. California government agencies work with the California GIS Council, regional GIS collaboratives and the broader California GIS community to define the data architecture, systems, standards, agreements and processes for a fully integrated and effective California Spatial Data Infrastructure. http://www.atlas.ca.gov/

The State of California's Grants website offers a one-stop source for grant information for seekers or contributors. Grant opportunities from hundreds of sources are listed for agriculture, environmental quality, natural resources, community development, and much more. http://www.ca.gov/Grants.html



California's Bioregions

The California Biodiversity Council approaches biological conservation in California at a bioregional scale. These bioregions are primarily based upon the state's physiographic provinces.

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Northern California Counties Assn.

Upcoming Events

Mar. 22-26, 2009 ***International Master Gardener Conference***
Sponsor: University of Nevada
Location: Las Vegas, Nevada
Contact: Ann Edmunds, (702) 257-5587
edmundsa@unce.unr.edu
http://www.unce.unr.edu/imgc/

Apr. 15, 2009 ***7th Annual Watershed Day at the Capital***
Sponsor: California Watershed Network
Location: Sacramento, California
Contact: (916) 549-4017
http://watershednetwork.org/nodes/programs/watershedday/2009.html

May 10, 2009 ***Lecture by E. O. WILSON: Biodiversity And Our Future, Healing Mother Earth***
Sponsor: Canopy
Location: Palo Alto, California
Contact: (650) 964-6110
http://www.canopy.org/

July 20-24, 2009 ***3rd National Conference on Ecosystem Restoration***
Sponsor: University of Florida IFAS
Location: Los Angeles, California
Contact: Beth Miller-Tipton, (352) 392-5930
bmt@ufl.edu
http://conference.ifas.ufl.edu/ncer2009/

Oct. 6-7, 2009 ***27th Biennial Groundwater Conference***
Sponsor: University of California Water Resources Center
Location: Sacramento, California
Contact: (951) 827-4327
http://www.waterresources.ucr.edu/

Oct. 14-15, 2009 ***Recovery of Anadramous Fish***
Sponsor: California Biodiversity Council
Location: Sacramento, California
Contact: Lauren McNees, (916) 445-5845,
lauren.mcnees@fire.ca.gov
http://www.biodiversity.ca.gov/

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In this issue . . .

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